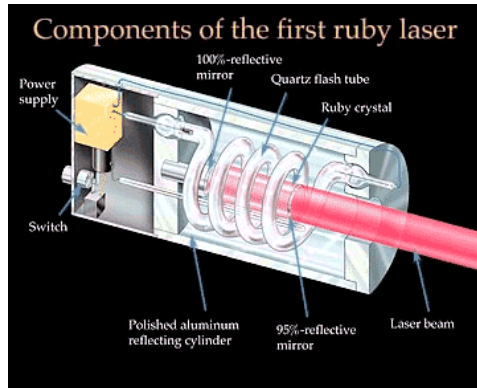


1960: Theodore Maiman constructs first ruby laser



Applications:

- Range Finders
- Tattoo Removal
- Hair Removal
- Holography
- Material Strength Examination
- Cutting Diamonds!



Importance:

- First Laser Constructed
- Study of Population Inversion
- Laser Medium Exploration
- Lead to/exploration of gas lasers

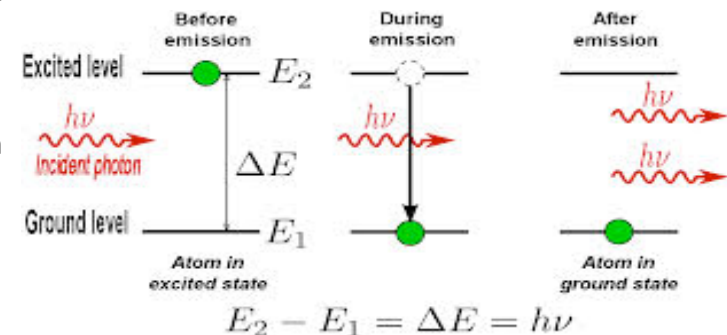
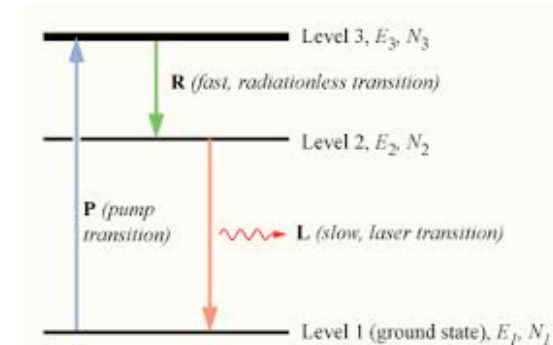
Methodology:

- Maser possibility (Laser we can see) shown.
- Thought that Ruby as a medium would require too much energy to produce populated inversion.
- Try Ruby by pumping with various light sources.
- Found Flashtube to work (so intense it will ignite steel wool).



Theodore Maiman (1927-2007)

Population Inversion



How It Works:

- Flash tube usually constructed from xenon used to strike ruby.
- Synthetic ruby crystal is used as a gain medium, where electrons are excited.
- The flashes are very bright and cause electrons to “jump” to higher energy levels.
- After population inversion is maintained the electrons then drop to a lower energy and release photons≈ 690nm
- The alternating flashing of the xenon flashtube allows the process to continue.

